PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Jack W. Adoline, et al.
For	:	DAMPENED COMPRESSION SPRING ROD
Serial No.	:	10/820,280
Filing Date	:	April 8, 2004
Examiner	:	Mariano O. Sy
Gr. Art Unit	:	3683
Our Docket	:	BGEE 2 00017

APPEAL BRIEF

Mail Stop Appeal Brief - Patent
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

This is an appeal from the decision of the examiner dated August 22, 2007 finally rejecting the pending claims in the above-identified patent application. Pursuant to 37 C.F.R. 41.20(b)(2), the fee for filing the Appeal Brief is $510.00 and is submitted with this Appeal Brief. If the submitted fee is insufficient for the Appeal Brief, the Commissioner is authorized to charge any fee which may be required, or credit any overpayment to Deposit Account No. 06-0308.

I. REAL PARTY IN INTEREST

Barnes Group Inc. is the real party in interest as assignee of the named inventors.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

The above-identified patent application presently contains claims 1-40 and 42-96. Claims 33-40, 42-48, 63-71 and 77-83 have been withdrawn. Claims 1 and 49 are the only pending independent claims. The examiner in the Final Office Action indicated that none of the pending claims were in allowable form.

The examiner in the Final Office Action rejected claims 1-32, 49-62, 72-76 and 84-96 under 35 U.S.C. 103(a) as unpatentable over Adoline et al. (US 6,773,002) in view of Miura et al. (US 6,315,093).

Claims 1-32, 49-62, 72-76 and 84-96 are the subject of this Appeal. Appellant has included the appealed claims in the Appendix of Claims.

IV. STATUS OF AMENDMENTS

Appellant has not filed any amendments to the claims after receiving the Final Office Action.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention is directed to a novel spring system and method of controlling the rate of extension and retraction of a spring rod of a spring system, which spring system includes a plurality of compression springs and a guide member that at least partially regulates fluid flow between at least two sub-chambers in the housing during reciprocation of the rod member.

Claims 2-32 and 87-92 directly or ultimately depend from independent claim 1. Claims 50-62, 72-76, 84-86 and 93-96 directly or ultimately depend from independent claim 49.

None of the claims on appeal include mean-plus-function language.

A. INDEPENDENT CLAIM 1

Independent claim 1 is directed to a spring system 20 (P. 1, lns. 5-6, P. 2, lns. 14-15, P. 16, lns. 22-26; Figs. 1-11).

The spring system 20 includes a housing 50 having an axis A, an internal chamber 52, and axially opposite bottom and top ends, 56,60. (P. 16, lns. 22-27; Figs. 1, 2, 11).

The spring system 20 also includes a rod member 30 coaxial with the housing axis A. (P. 16, lns. 22-27; Figs. 1-2. 5-11).

The rod member 30 is positioned within the internal chamber 52 of the housing 50. (P. 16, lns. 22-27; Figs. 1-2. 5-11).

The rod member 30 has an inner end 34 in the housing 50 and an outer end 32 axially outwardly of the top end 60 of the housing 50. (P. 16, lns. 27-29; Figs. 1, 2, 11).

The spring system 20 includes a guide member 130 on the inner end 34 of the rod member 30. (P. 16, lns. 27-29; Figs. 1-2, 5-11).

The guide member 130 is supported on the rod member 30 for reciprocation axially of the housing 50 between retracted and extended positions. (P. 18, lns. 12-19; Figs. 1-2, 5-11).

The spring system 20 includes first and second compression springs 120, 122 that each extend between the guide member 130 and the bottom end 56 of the housing 50 and top and bottom bushings 80, 70. (P. 16, ln. 30; P. 17, lns. 1-14, 21-28; Figs. 1-2, 11).

The top bushing 80 is positioned at least closely adjacent to the top end 60 of the housing 50, and the bottom bushing 70 is positioned at least closely adjacent to the bottom end 56 of the housing 50. (P. 17, lns. 5-28; Figs. 1-2, 9-11).

The top bushing 80 includes an opening 82 to enable a portion of the rod member 30 to pass therethrough and to support the rod member 30 for reciprocation axially of the housing 50 between retracted and extended positions relative thereto. (P. 17, lns. 21-28; Figs. 1-2, 5-11).

The top bushing 80 includes a sealing arrangement 90, 92 to inhibit fluid from entering into and escaping from the internal chamber 52 between the top bushing 80 and the top end 60 of the housing 50. (P. 17, lns. 28-30; P. 18, lns. 1-4; Figs. 1-2, 5-11).

The first and second springs 120, 122 are coaxial with one another and with the axis A. (P. 22,lns. 27-29; Figs. 1, 2, 11).

At least one of the springs 120, 122 at least partially applies a force on the guide member 130 as the rod member 30 moves between fully retracted and fully extended positions. (P. 20, lns. 22-27; P. 21, lns. 13-15; Figs. 1-2, 5-11).

At least one of the springs 120, 122 has a free length that is at least a majority length of the internal chamber 52. (P. 20, lns. 22-27; Figs. 1).

Both of the springs 120, 122 contact the bottom bushing 70 when the rod member 30 is in the fully retracted position. (P. 19, lns. 13-20; Figs. 2, 11).

The guide member 130 divides the internal chamber 52 into at least two sub-chambers 150, 152. (P. 18, lns. 27-30; Figs. 2, 5-11).

The guide member 130 includes a first passageway 140 that at least partially regulates fluid flow between the at least two sub-chambers 150, 152 during the reciprocation of the rod member 30. (P. 19, lns. 3-9; P. 20, lns. 28-30; P. 21, lns. 1-2, 21-30; P. 22, lns. 1-21; Figs. 1-11).

The first passageway 140 is spaced from an outer edge of the guide member 130. (P. 10, lns. 19-22; Figs. 1-11).

The outer end 32 of the rod member 30 includes a mounting element 110. (P. 18, lns. 5-6; Figs. 1-2, 11).

B. INDEPENDENT CLAIM 49

Independent claim 49 is directed to a method of controlling the rate of extension and retraction of a spring rod of a spring system 20. (P. 2, lns. 15-17, 25-28; Fig. 1-11).

The method includes providing a housing 50 of the spring system 20 that has a longitudinal axis A, an internal chamber 52, and axially opposite bottom and top ends, 56,60. (P. 16, lns. 22-27; Figs. 1, 2, 11).

The spring system 20 also includes a rod member 30 coaxial with the housing axis A. (P. 16, lns. 22-27; Figs. 1-2. 5-11).

The rod member 30 is positioned within the internal chamber 52 of the housing 50. (P. 16, lns. 22-27; Figs. 1-2. 5-11).

The rod member 30 has an inner end 34 in the housing 50 and an outer end 32 axially outwardly of the top end 60 of the housing 50. (P. 16, lns. 27-29; Figs. 1, 2, 11).

The outer end 32 of the rod member 30 includes a mounting element 110. (P. 18, lns. 5-6; Figs. 1-2, 11).

The spring system 20 includes a guide member 130 on the inner end 34 of the rod member 30. (P. 16, lns. 27-29; Figs. 1-2, 5-11).

The method also includes providing a guide member 130 to support the rod member 30 for reciprocation axially of the housing 50 between retracted and extended positions. (P. 18, lns. 12-19; Figs. 1-2, 5-11).

The guide member 130 divides the internal chamber 52 into at least two sub-chambers 150, 152. (P. 18, lns. 27-30; Figs. 2, 5-11).

The method also includes providing first and second compression springs 120, 122 that each extend between the guide member 130 and the bottom opposite end 56 of the housing 50. (P. 17, lns. 7-10; Figs. 1, 2, 11).

The first and second compression springs 120, 122 are coaxial with one another and with the axis A. (P. 22,lns. 27-29; Figs. 1, 2, 11).

At least one of the springs 120, 122 at least partially applies a force on the guide member 130 as the rod member 30 moves between fully retracted and fully extended positions. (P. 20, lns. 22-27; P. 21, lns. 13-15; Figs. 1-2, 5-11).

At least one of the springs 120, 122 has a free length that is at least a majority length of the internal chamber 52. (P. 20, lns. 22-27; Figs. 1).

Both of the springs 120, 122 are designed to contact the bottom bushing 70 when the rod member 30 is in the fully retracted position. (P. 19, lns. 13-20; Figs. 2, 11).

The method also includes providing housing 50 with top and bottom bushings 80, 70. (P. 17, lns. 5-28; Figs. 1-2, 9-11).

The top bushing 80 is positioned at least closely adjacent to the top end 60 of the housing 50, and the bottom bushing 70 is positioned at least closely adjacent to the bottom end 56 of the housing 50. (P. 17, lns. 5-28; Figs. 1-2, 9-11).

The top bushing 80 includes an opening 82 to enable a portion of the rod member 30 to pass therethrough and to support the rod member 30 for reciprocation axially of the housing 50 between retracted and extended positions relative thereto. (P. 17, lns. 21-28; Figs. 1-2, 5-11).

The top bushing 80 includes a sealing arrangement 90, 92 to inhibit fluid from entering into and escaping from the internal chamber 52 between the top bushing 80 and the top end 60 of the housing 50. (P. 17, lns. 28-30; P. 18, lns. 1-4; Figs. 1-2, 5-11).

The method also includes at least partially controlling the rate of retraction of the spring rod 30 by selecting the spring rate of at least one of the compression springs 120, 122.

The method also includes at least partially controlling the rate of extension of the spring rod 30 by at least partially regulating a fluid flow rate between the sub-chambers 150, 152 of the housing 50. (P. 19, lns. 3-9; P. 20, lns. 28-30; P. 21, lns. 1-2, 21-30; P. 22, lns. 1-21; Figs. 1-11).

The step of at least partially controlling the rate of extension includes providing a first fluid passageway 140 through the guide member 130. (P. 19, lns. 3-9; P. 20, lns. 28-30; P. 21, lns. 1-2, 21-30; P. 22, lns. 1-21; Figs. 1-11).

The first passageway 140 is spaced from an outer edge of the guide member 130. (P. 10, lns. 19-22; Figs. 1-11).

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-32, 49-62, 72-76 and 84-96 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Adoline et al. (US 6,773,002) in view of Miura et al. (US 6,315,093).

VII. ARGUMENT

A. THE ISSUE ON APPEAL

The examiner's final rejection of claims 1-32, 49-62, 72-76 and 84-96 under 35 U.S.C. §103(a) as being unpatentable over Adoline et al. (US 6,773,002) in view of Miura et al. (US 6,315,093) is in error. Adoline '002 in view of Miura '093 does not disclose, teach or suggest a spring system that includes a plurality of compression springs and a guide member that at least

partially regulates fluid flow between at least two sub-chambers in the housing during reciprocation of the rod member. As such, claims 1-32, 49-62, 72-76 and 84-96 cannot be obvious over Adoline '002 in view of Miura '093.

1. Adoline '002 is Not Prior Art for Purposes of 35 U.S.C. §103(a)

Appellant submits that Adoline '002 is not a prior art reference to the patent application, thus has been improperly used by the examiner to support a rejection of the claims under 35 U.S.C. §103(a). Adoline '002 was filed on January 28, 2002 and indicates that the named inventors are Jack W. Adoline and Thomas J. Fischer.

The present invention claims priority on PCT/US 03/0075 filed January 10, 2003, which in turn claims priority on United States Patent Application Serial No. 10/056,941 filed January 28, 2002, now Patent No. 6,773,002 (Adoline '002). As such, the earliest claimed priority date for the present invention is Adoline '002, which was cited as prior art by the examiner against the claims on Appeal. In addition, the inventors of the present invention and Adoline '002 are the same. Furthermore, the present invention and Adoline '002 are owned by the same Assignee, namely Barnes Group Inc. This common ownership is evidenced by the assignments recorded in the United States Patent Office at reel and frame numbers 012536/0769 and 015200/0040.

In view of the facts above, Adoline '002 is not prior art to the present invention under 35 U.S.C. §102(a), thus cannot be used as a reference by itself or in combination with another reference to support a rejection of any of the claims on Appeal under 35 U.S.C. §103(a).

Appellant submits that for at least the reasons set forth above, none of the pending claims in the above-identified patent application are obvious in view of the cited art of record. Appellant respectfully requests that the rejection of the claims be withdrawn and that such claims be indicated

as allowable.

2. Adoline '002 in view of Miura '093 Do Not Disclose, Teach or Suggest the Claimed Invention

Appellant submits that Adoline '002 in view of Miura '093 do not disclose, teach, or suggest the spring system that satisfies all the limitations of claims 1-32, 49-62, 72-76 and 84-96.

To reject claims in an application under 35 U.S.C. §103, there must be a showing of an unrebutted *prima facie* case of obviousness. *In re Deuel*, 34 USPQ2d 1210, 1214 (Fed. Cir. 1995). In the absence of a proper *prima facie* case of obviousness, an inventor who complies with the other statutory requirements is entitled to a patent. *Oetiker*, 24 USPQ2d at 1444.

Section 103 specifically requires consideration of the claimed invention "as a whole." *Ruiz v. A.B. Chance Co.*, 69 USPQ2d 1686, 1690 (Fed. Cir 2004). Inventions typically are new combinations of existing principles or features. *Envtl. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698 (Fed. Cir. 1983) (noting that "virtually all [inventions] are combinations of old elements."). As such, most, if not all, inventions arise from a combination of old elements. *In re Rouffet*, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998). Consequently, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. *Id.* The "as a whole" instruction in Title 35 prevents evaluation of the invention part by part. *Ruiz*, 69 USPQ at 1690. Without this important requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious. *Id.* This form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a

new result--often the very definition of invention. *Id.*

Section 103 precludes this hindsight discounting of the value of new combinations by requiring assessment of the invention as a whole. *Id.* A rejection under Section 103 also requires a showing that an artisan of ordinary skill in the art at the time of invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention, would select the various elements from the prior art and combine them in the claimed manner. *Id.* In other words, the examiner must show some suggestion or motivation, before the invention itself, to make the new combination. *Rouffet*, 47 USPQ2d at 1456; *Dance*, 48 USPQ2d at 1637; *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984). Without such teachings, the claims pending in the above-identified patent application cannot be shown to be invalid for obviousness. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997) (absence of a suggestion to combine is dispositive of an obviousness determination).

A critical step in analyzing the patentability of claims pursuant to 35 U.S.C. §103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. *Dembiczak*, 50 USPQ2d at 1617. When the art in question is relatively simple, the opportunity to judge by hindsight is particularly tempting. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher." *Id.*

The best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to

combine prior art references." *Id. See also C.R. Bard, Inc. v. M3 Sys., Inc.*, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *Rouffet*, 47 USPQ2d at 1459 ("the Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to select the references and combine them"); *In re Fritch*, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (The examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 227 USPQ 657, 667 (Fed. Cir. 1985) (district court's conclusion of obviousness was in error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination").

Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. *Interconnect Planning Corp. v. Feil*, 227 USPQ 543, 547 (Fed. Cir. 1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time."); *Diversitec Corp. v. Century Steps, Inc.*, 850 F.2d 675 (Fed. Cir. 1988).

The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases, the nature of the problem to be solved. *Dembiczak*, 50 USPQ2d at 1617. In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. *WMS Gaming, Inc. v. International Game Tech.*, 51 USPQ2d 1385, 1397 (Fed. Cir. 1999). The test for an implicit

showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. *In re Keller*, 208 USPQ 871, 881 (CCPA 1981).

Irrespective of whether express or implicit showings are relied upon to reject claims under Section 103, there must be provided particular findings related thereto. *Dembiczak*, 50 USPQ2d at 1617. Broad conclusory statements standing alone are not "evidence" of obviousness. *Id.*, *See also McElmurry v. Arkansas Power & Light Co.*, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993); *In re Sichert*, 196 USPQ 209, 217 (CCPA 1977).

As will be established below, the examiner has not properly established a *prima facie* case of obviousness against any of the pending claims. Indeed, the rejection of the claims in the Final Office Action appears to evidence the use of hindsight reconstruction to support a rejection of the claims on appeal.

3. Patentably Distinct Claims

Claims 1-32, 49-62, 72-76 and 84-96 were rejected under 35 U.S.C. 103(a) as being unpatentable over Adoline '002 in view of Miura '093.

The examiner cited Adoline '002 as the primary prior art against claims 1-32, 49-62, 72-76 and 84-96. As set forth above, Adoline '002 is not prior art that can be used to support a rejection of the claims on Appeal under 35 U.S.C. §103.

Appellant further submits that even if the teachings of Adoline '002 are combined with the teachings of Miura '093, the combined teachings would not make obvious the invention defined in independent claims 1 and 49 on Appeal.

On pages 2 and 3 of the Final Office Action, the examiner summarized the disclosure of Adoline '002. Appellant does not disagree with such summary. The examiner admitted on page 3 of the Final Office Action that Adoline '002 does not disclose that 1) the top and bottom ends of the housing of the spring system as being sealed or sealable, 2) the guide member having a passageway that passes through the guide member, 3) the passageway in the guide member can include a valve, 4) the guide member includes a second passageway that passes through the guide member, 5) the second passageway is spaced from the first passageway, 6) the second passageway is spaced from the outer edge of the guide member, and 7) the second passageway has a maximum flow rate that is less than the maximum fluid rate of the first passageway.

Appellant agrees that Adoline '002 does not disclose these seven (7) features that are defined in one or more of the claims on Appeal. Appellant submits that Adoline '002 also does not disclose that a) the first passageway is spaced from the outer edge of the guide member, b) the top bushing includes a sealing arrangement that inhibits fluid from entering into and escaping from the internal chamber between the top bushing and the top end of the housing, c) the first passageway includes a one way valve arrangement, and d) the second passageway allows for fluid flow in both directions.

The examiner cited Miura '093as including teachings that could be combined with Adoline '002 to overcome the seven (7) deficiencies of Adoline '002 identified by the examiner. The examiner admitted on page 4 of the Final Office Action that Miura '093 does not disclose that the shock absorber includes one or more compression springs.

As an initial matter, Appellant asserts that Miura '093 is not proper art to be combined with Adoline '002 since Adoline '002, like the claims on Appeal, are directed to a spring system that includes a plurality of mechanical springs, whereas Miura '093 does not include any mechanical

springs. As such, the combination of Adoline '002 and Miura '093 cannot be used to support a rejection of any of the claims on Appeal under 35 U.S.C. §103. The examiner asserted on page 4 of the Final Office Action that if Miura '093 included mechanical springs, then Miura '093 could be used as a Section 102 reference. Appellant submits that such reasoning by the examiner does not justify the combination of the Miura '093 with Adoline '002.

The examiner asserted that Miura '093 discloses that the top and bottom ends are sealable. This is a slight mischaracterization of Miura '093 since the bottom of cylinder 1 has no opening, thus cannot be sealable. The examiner relied solely on the teachings of Figure 5 of Miura '093 when combining Miura '093 with Adoline '002. The teachings of Figure 5 are set forth in Column 6, lines 7-14 of Miura '093. The examiner asserted that Figure 5 and the description of Figure 5 in Column 6, lines 7-14 of Miura '093 disclose a guide member that 1) has a first passageway and a second passageway, 2) has a first passageway with a one way valve, 3) has a second passageway that is spaced from the first passageway, 4) has a second passageway that is spaced from the edge of the guide member, and 5) has a second passageway that has a maximum flow rate that is less than the maximum flow rate of the first passageway.

Appellant agrees that Miura '093 teaches items 1-3, but disagrees that Miura '093 teaches items 4 and 5. Figure 5 only includes mechanical symbols for a passageway having a valve and a passageway that does not have a valve. The disclosure does not indicate the location of the two passageways on the guide member. The examiner has merely made an assumption that the two passageways are spaced from the outer edge of the guide member. Also, there is absolutely no disclosure in Miura '093 regarding the relative flow rates through the two passageways in the guide member. In addition to the deficiencies of the Miura '093 as set forth above, Miura '093 does not

disclose, teach or suggest that the bottom end of the housing of the spring system as being sealed by a bottom bushing.

In view of the deficiencies of Adoline '002 and Miura '093 as set forth above, the combination of the these two references does not make obvious independent claims 1 and 49 and all of the claims dependent therefrom. Furthermore, the combination of Adoline '002 and Miura '093 does not make obvious dependent claims 17-28 and 53-60.

Appellant requests that the rejection of independent claims 1 and 49 and dependent claims 2-32, 50-62, 72-76 and 84-96 under 35 U.S.C. §103(a) as being unpatentable over Adoline '002 in view of Miura '093 be reversed and that such claims be indicated as allowable over the cited art of record.

B. SUMMARY

In conclusion, the claims on appeal pertain to a spring system and method of using the spring system. Appellant submits that for at least the reasons set forth above, none of the pending claims in the above-identified patent application are obvious in view of the cited art of record. Appellant respectfully requests that the rejection of the claims be withdrawn and that such claims be indicated as allowable.

VIII. CLAIMS APPENDIX

1. (Previously Presented) A spring system comprising a housing having an axis, an internal chamber, and axially opposite bottom and top ends; a rod member coaxial with said axis and positioned within said internal chamber and having an inner end in said housing and an outer end axially outwardly of said top end of said housing; a guide member on said inner end of said rod member supporting said rod member for reciprocation axially of said housing between retracted and extended positions relative thereto; first and second compression springs each extending between said guide member and the bottom end of said housing and top and bottom bushings, said top bushing positioned at least closely adjacent to said top end of said housing and said bottom bushing positioned at least closely adjacent to said bottom end of said housing; said top bushing including an opening to enable a portion of said rod member to pass therethrough and to support said rod member for reciprocation axially of said housing between retracted and extended positions relative thereto, said top bushing including a sealing arrangement to inhibit fluid from entering into and escaping from said internal chamber between said top bushing and said top end of said housing, said first and second springs being coaxial with one another and with said axis, at least one of said springs at least partially applying a force on said guide member as said rod member moves between fully retracted and fully extend positions, at least one of said springs having a free length that is at least a majority length of said internal chamber, both of said springs contacting said bottom bushing when said rod member in said fully retracted position, said guide member dividing said internal chamber into at least two sub-chambers, said guide member including a first passageway that at least partially regulates fluid flow between said at least two sub-chambers during said reciprocation of said rod member, said first passageway spaced from an outer edge of said guide member, said outer end of

said rod member including a mounting element.

2. (Original) The spring system as defined in claim 1, wherein the direction of winding of said first compression spring is opposite to the direction of winding of said second compression spring.

3. (Original) The spring system as defined in claim 1, wherein the free length of said first compression spring is different from the free length of said second compression spring.

4. (Original) The spring system as defined in claim 2, wherein the free length of said first compression spring is different from the free length of said second compression spring.

5. (Original) The spring system as defined in claim 1, wherein the outside diameter of said first compression spring is less than the outside diameter of said second compression spring.

6. (Original) The spring system as defined in claim 2, wherein the outside diameter of said first compression spring is less than the outside diameter of said second compression spring.

7. (Original) The spring system as defined in claim 4, wherein the outside diameter of said first compression spring is less than the outside diameter of said second compression spring.

8. (Original) The spring system as defined in claim 2, wherein the wire diameter of said first compression spring is less than the wire diameter of said second compression spring.

9. (Original) The spring system as defined in claim 7, wherein the wire diameter of said first compression spring is less than the wire diameter of said second compression spring.

10. (Original) The spring system as defined in claim 1, wherein the wire diameter of said first compression spring is less than the wire diameter of said second compression spring.

11. (Original) The spring system as defined in claim 1, wherein the outside diameter and wire diameter of said first compression spring are respectively less than the outside diameter and wire diameter of said second compression spring.

12. (Original) The spring system as defined in claim 2, wherein the outside diameter and wire diameter of said first compression spring are respectively less than the outside diameter and wire diameter of said second compression spring.

13. (Original) The spring system as defined in claim 10, wherein the outside diameter and wire diameter of said first compression spring are respectively less than the outside diameter and wire diameter of said second compression spring.

14. (Original) The spring system as defined in claim 1, wherein said first passageway in said guide member includes a one way valve arrangement.

15. (Original) The spring system as defined in claim 2, wherein said first passageway in said guide member includes a one way valve arrangement.

16. (Original) The spring system as defined in claim 12, wherein said first passageway in said guide member includes a one way valve arrangement.

17. (Previously Presented) The spring system as defined in claim 1, wherein said guide member includes a second passageway, said second passageway spaced from an outer edge of said guide member and spaced from said first passageway.

18. (Previously Presented) The spring system as defined in claim 14, wherein said guide member includes a second passageway, said second passageway spaced from an outer edge of said guide member and spaced from said first passageway.

19. (Previously Presented) The spring system as defined in claim 2, wherein said guide member includes a second passageway, said second passageway spaced from an outer edge of said guide member and spaced from said first passageway.

20. (Previously Presented) The spring system as defined in claim 15, wherein said guide member includes a second passageway, said second passageway spaced from an outer edge of said guide member and spaced from said first passageway.

21. (Previously Presented) The spring system as defined in claim 16, wherein said guide member includes a second passageway, said second passageway spaced from an outer edge of said guide member and spaced from said first passageway.

22. (Original) The spring system as defined in claim 17, wherein said second passageway has a maximum fluid flow rate that is less than a maximum fluid flow rate of said first passageway.

23. (Original) The spring system as defined in claim 18, wherein said second passageway has a maximum fluid flow rate that is less than a maximum fluid flow rate of said first passageway.

24. (Original) The spring system as defined in claim 19, wherein said second passageway has a maximum fluid flow rate that is less than a maximum fluid flow rate of said first passageway.

25. (Original) The spring system as defined in claim 20, wherein said second passageway has a maximum fluid flow rate that is less than a maximum fluid flow rate of said first passageway.

26. (Original) The spring system as defined in claim 21, wherein said second passageway has a maximum fluid flow rate that is less than a maximum fluid flow rate of said first passageway.

27. (Original) The spring system as defined in claim 1, wherein said bottom end is sealed to substantially prevent fluid flow through said bottom end.

28. (Original) The spring system as defined in claim 25, wherein said bottom end is sealed to substantially prevent fluid flow through said bottom end.

29. (Previously Presented) The spring system as defined in claim 1, wherein said top end is sealed to substantially prevent fluid flow through said top end.

30. (Previously Presented) The spring system as defined in claim 25, wherein said top end is sealed to substantially prevent fluid flow through said top end.

31. (Previously Presented) The spring system as defined in claim 27, wherein said top end is sealed to substantially prevent fluid flow through said top end.

32. (Previously Presented) The spring system as defined in claim 28, wherein said top end is sealed to substantially prevent fluid flow through said top end.

33. (Withdrawn) The spring system as defined in claim 1, wherein said top end includes a passageway to allow for a controlled rate of fluid flow to exit said internal chamber as said rod member moves to said extended position.

34. (Withdrawn) The spring system as defined in claim 25, wherein said top end includes a passageway to allow for a controlled rate of fluid flow to exit said internal chamber as said rod member moves to said extended position.

35. (Withdrawn) The spring system as defined in claim 27, wherein said top end includes a passageway to allow for a controlled rate of fluid flow to exit said internal chamber as said rod member moves to said extended position.

36. (Withdrawn) The spring system as defined in claim 28, wherein said top end includes a passageway to allow for a controlled rate of fluid flow to exit said internal chamber as said rod member moves to said extended position.

37. (Withdrawn) The spring system as defined in claim 33, wherein said passageway in said top end is spaced from said rod member.

38. (Withdrawn) The spring system as defined in claim 36, wherein said passageway in said top end is spaced from said rod member.

39. (Withdrawn) The spring system as defined in claim 33, wherein said passageway in said top end is adjacent to said rod member.

40. (Withdrawn) The spring system as defined in claim 36, wherein said passageway in said top end is adjacent to said rod member.

Claim 41 (Canceled).

42. (Withdrawn) The spring system as defined in claim 1, including a guide rod that extends from said guide member toward said bottom end coaxial with said axis and said first compression spring surrounds said guide rod.

43. (Withdrawn) The spring system as defined in claim 1, including at least a third compression spring, said third compression spring extending between said guide member and said bottom end of said housing coaxial with said axis.

44. (Withdrawn) The spring system as defined in claim 1, including at least a third compression spring, said third compression spring extending between said guide member and said top end of said housing coaxial with said axis.

45. (Withdrawn) The spring system as defined in 44, wherein a direction of winding of said first and third compression springs is opposite to a direction of winding of said second compression spring.

46. (Withdrawn) The spring system as defined in claim 44, wherein a length of said first and third compression springs are the same.

47. (Withdrawn) The spring system as defined in claim 44, wherein outside diameters of said first and third compression springs are less than an outside diameter of said second compression spring.

48. (Withdrawn) The spring system as defined in claim 44, wherein an outside diameter and wire diameter of said first and third compression springs is less respectively than an outside diameter and wire diameter of said second compression spring.

49. (Previously Presented) A method of controlling the rate of extension and retraction of a spring rod of a spring system comprising:

providing a housing having a longitudinal axis, an internal chamber, and axially opposite bottom and top ends, said spring rod coaxial with said axis and positioned within said internal chamber, said spring rod having an inner end in said housing and an outer end axially outwardly of said top end of said housing, said outer end of said spring rod including a mounting element;

providing a guide member positioned on said inner end of said spring rod, said guide member supporting said spring rod for reciprocation axially in said housing between a fully retracted and a fully extended position relative thereto, said guide member dividing said internal chamber into at least upper and lower sub-chambers;

providing first and second compression springs each extending between said guide member

and the bottom opposite end of said housing, said first and second springs being coaxial with one another and with said axis, at least one of said springs at least partially applying a force on said guide member as said rod member moves between fully retracted and fully extended positions, at least one of said springs having a free length that is at least a majority length of said internal chamber, both of said springs designed to contact said bottom bushing when said rod member in said fully retracted position;

providing top and bottom bushings, said top bushing positioned at least closely adjacent to said top end of said housing and said bottom bushing positioned at least closely adjacent to said bottom end of said housing; said top bushing including an opening to enable a portion of said rod member to pass therethrough and to support said rod member for reciprocation axially of said housing between retracted and extended positions relative thereto, said top bushing including a sealing arrangement to inhibit fluid from entering into and escaping from said internal chamber between said top bushing and said top end of said housing;

at least partially controlling the rate of retraction of said spring rod by selecting the spring rate of at least one of said compression springs; and,

at least partially controlling the rate of extension of said spring rod by at least partially regulating a fluid flow rate between said sub-chambers, said step of at least partially controlling the rate of extension includes providing a first fluid passageway through said guide member, said first passageway spaced from an outer edge of said guide member.

50. (Previously Presented) The method as defined in claim 49, wherein said first passageway at least partially regulates fluid flow between said upper and lower sub-chambers during

said extension of said spring rod.

51. (Original) The method as defined in claim 50, wherein said first passageway includes a one way valve arrangement.

52. (Previously Presented) The method as defined in claim 51, wherein said one way valve substantially prevents fluid flow from said upper sub-chamber to said lower sub-chamber during said extension of said spring rod.

53. (Previously Presented) The method as defined in claim 50, wherein said guide member includes a second passageway, said second passageway spaced from an outer edge of said guide member and spaced from said first passageway.

54. (Previously Presented) The method as defined in claim 52, wherein said guide member includes a second passageway, said second passageway spaced from an outer edge of said guide member and spaced from said first passageway.

55. (Original) The method as defined in claim 53, wherein said second passageway has a maximum fluid flow rate that is less than a maximum fluid flow rate of said first passageway.

56. (Original) The method as defined in claim 54, wherein said second passageway has a maximum fluid flow rate that is less than a maximum fluid flow rate of said first passageway.

57. (Original) The method as defined in claim 49, wherein said bottom end of said housing substantially prevents fluid flow through said bottom end to an exterior of said housing.

58. (Original) The method as defined in claim 53, wherein said bottom end of said housing substantially prevents fluid flow through said bottom end to an exterior of said housing.

59. (Original) The method as defined in claim 56, wherein said bottom end of said housing substantially prevents fluid flow through said bottom end to an exterior of said housing.

60. (Original) The method as defined in claim 49, wherein said top end of said housing substantially prevents fluid flow through said top end to an exterior of said housing.

61. (Original) The method as defined in claim 58, wherein said top end of said housing substantially prevents fluid flow through said top end to an exterior of said housing.

62. (Original) The method as defined in claim 59, wherein said top end of said housing substantially prevents fluid flow through said top end to an exterior of said housing.

63. (Withdrawn) The method as defined in claim 49, wherein said top end includes a top passageway to allow a controlled rate of fluid flow to exit said upper sub-chamber as said spring member moves to said fully extended position.

64. (Withdrawn) The method as defined in claim 58, wherein said top end includes a top passageway to allow a controlled rate of fluid flow to exit said upper sub-chamber as said spring member moves to said fully extended position.

65. (Withdrawn) The method as defined in claim 59, wherein said top end includes a top passageway to allow a controlled rate of fluid flow to exit said upper sub-chamber as said spring member moves to said fully extended position.

66. (Withdrawn) The method as defined in claim 63, wherein said top passageway is spaced from said spring rod.

67. (Withdrawn) The method as defined in claim 64, wherein said top passageway is spaced from said spring rod.

68. (Withdrawn) The method as defined in claim 65, wherein said top passageway is spaced from said spring rod.

69. (Withdrawn) The method as defined in claim 63, wherein said top passageway is adjacent to said spring rod.

70. (Withdrawn) The method as defined in claim 64, wherein said top passageway is adjacent to said spring rod.

71. (Withdrawn) The method as defined in claim 65, wherein said top passageway is adjacent to said spring rod.

72. (Original) The method defined in claim 49, wherein a direction of winding of said first compression spring is opposite to a direction of winding of said second compression spring.

73. (Original) The method as defined in claim 49, wherein a free length of said first compression spring is different from a free length of said second compression spring.

74. (Original) The method as defined in claim 49, wherein an outside diameter of said first compression spring is less than an outside diameter of said second compression spring.

75. (Original) The method as defined in claim 49, wherein a wire diameter of said first compression spring is less than a wire diameter of said second compression spring.

76. (Previously Presented) The method as defined in claim 49, including a bushing at said top end of said housing to support said rod for reciprocation axially of said housing between fully retracted and fully extended positions relative thereto.

77. (Withdrawn) The method as defined in claim 49, including a guide rod that extends from said guide member toward said bottom end coaxial with said axis and said first compression spring surrounds said guide rod.

78. (Withdrawn) The method as defined in claim 49, including at least a third compression spring, said third compression spring extending between said guide member and said bottom end of said housing coaxial with said axis.

79. (Withdrawn) The method as defined in claim 49, including at least a third compression spring, said third compression spring extending between said guide member and said top end of said housing coaxial with said axis.

80. (Withdrawn) The method as defined in claim 79, wherein a direction of winding of said first and third compression springs is opposite to a direction of winding of said second compression spring.

81. (Withdrawn) The method as defined in claim 79, wherein a length of said first and third compression springs are the same.

82. (Withdrawn) The method as defined in claim 79, wherein an outside diameter of said first and third compression springs are less than an outside diameter of said second compression spring.

83. (Withdrawn) The method as defined in claim 79, wherein an outside diameter and wire diameter of said first and third compression springs is less respectively than an outside diameter and wire diameters of said second compression spring.

84. (Previously Presented) The method as defined in claim 49, wherein at least one of said first and second compression springs in a partially compressed state when said spring rod member is in said fully extended position.

85. (Previously Presented) The method as defined in claim 61, wherein at least one of said first and second compression springs in a partially compressed state when said spring rod member is in said fully extended position.

86. (Previously Presented) The method as defined in claim 62, wherein at least one of said first and second compression springs in a partially compressed state when said spring rod member is in said fully extended position.

87. (Previously Presented) The spring system as defined in claim 18, wherein said second passageway allows for fluid flow in both directions.

88. (Previously Presented) The spring system as defined in claim 20, wherein said second passageway allows for fluid flow in both directions.

89. (Previously Presented) The spring system as defined in claim 21, wherein said second passageway allows for fluid flow in both directions.

90. (Previously Presented) The spring system as defined in claim 23, wherein said second passageway allows for fluid flow in both directions.

91. (Previously Presented) The spring system as defined in claim 26, wherein said second passageway allows for fluid flow in both directions.

92. (Previously Presented) The spring system as defined in claim 32, wherein said second passageway allows for fluid flow in both directions.

93. (Previously Presented) The method as defined in claim 53, wherein said second passageway allows for fluid flow in both directions.

94. (Previously Presented) The method as defined in claim 54, wherein said second passageway allows for fluid flow in both directions.

95. (Previously Presented) The method as defined in claim 55, wherein said second passageway allows for fluid flow in both directions.

96. (Previously Presented) The method as defined in claim 58, wherein said second passageway allows for fluid flow in both directions.

IX. EVIDENCE APPENDIX

The evidence of record in this appeal is Adoline et al. (US 6,773,002) and Miura et al. (US 6,315,093). These two patents were cited by the examiner during the prosecution of the patent application.

X. RELATED PROCEEDINGS APPENDIX

There are no related proceedings.

Respectfully submitted,
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